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## **FESTO'S EFFECT ON AFTER-ARISING TECHNOLOGY AND THE DOCTRINE OF EQUIVALENTS**

Anthony H. Azure

*Abstract:* In *Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co.*, the Federal Circuit adopted a strict approach to prosecution history estoppel and thereby limited the availability of the doctrine of equivalents to patentees suing for infringement by after-arising technology. The court held that when a narrowing claim amendment creates prosecution history estoppel, the amended claim element maintains no range of equivalents and therefore the patentee is completely barred from applying the doctrine of equivalents. The court rejected the flexible approach, which allows a scope of equivalents even after a narrowing claim amendment. This Note argues that the Supreme Court should overrule the *Festo* decision and adopt the flexible approach to prosecution history estoppel in cases of infringement by after-arising technology. The strict approach adopted by *Festo* hinders the doctrine of equivalents in protecting patentees from infringement by after-arising technology. The *Festo* majority misinterpreted the Supreme Court's opinion in *Warner-Jenkinson Co. v. Hilton Davis Chemical Co.*, which implies that a scope of equivalents is available after a narrowing claim amendment has been made for patentability reasons. In addition, the *Festo* decision leads to incongruous results with respect to after-arising technology, as it protects unamended claims but not amended claims, and predictable arts but not unpredictable arts. Furthermore, *Festo* conflicts with patent policy, which rewards pioneer inventions with a broad range of equivalents. Finally, this flexible approach would give patentees fair protection from infringement by after-arising technology under the doctrine of equivalents.

The United States patent system is designed to promote the public disclosure of innovation. In exchange for publicly disclosing a new invention, a patentee gains the right to exclude others from making, using, or selling the invention.<sup>1</sup> The U.S. Supreme Court and the Federal Circuit have recognized that copyists should not be able to avoid infringement by using after-arising technology to make insubstantial substitutions in a patented invention.<sup>2</sup> The courts have defined after-arising technology as technological developments known after issuance of a patent.<sup>3</sup> In order to protect patentees from such insubstantial substitutions, the courts developed the doctrine of equivalents. Under the doctrine of equivalents, a patentee can claim infringement when an accused device is not an exact copy of the patented invention, but an

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1. 35 U.S.C. § 271 (2000).

2. *Warner-Jenkinson Co. v. Hilton Davis Chem. Co.*, 520 U.S. 17, 37 (1997); *Litton Sys., Inc. v. Honeywell, Inc.*, 140 F.3d 1449, 1455, 1457 (Fed. Cir. 1998).

3. *Warner-Jenkinson*, 520 U.S. at 37; *Al-Site Corp. v. VSI Int'l, Inc.*, 174 F.3d 1308, 1320 (Fed. Cir. 1999); *Litton*, 140 F.3d at 1457; see also MARTIN J. ADELMAN, PATENT LAW PERSPECTIVES § 3.4[1], at 3-40.17 to 3-40.18 (2d ed. 2001).

element of the accused device performs substantially the same function in substantially the same way to obtain the same result.<sup>4</sup>

In *Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co.*,<sup>5</sup> the Federal Circuit, sitting en banc, resolved several issues involving the doctrine of equivalents.<sup>6</sup> In the most divisive issue, the court held that a narrowing claim amendment creates a “complete bar” to the application of the doctrine of equivalents to the amended claim element.<sup>7</sup> The majority reasoned that this would promote the public notice function of patents and create more certainty in the patent system.<sup>8</sup> Several dissenting judges sharply disagreed, arguing that the decision contradicted Supreme Court and Federal Circuit precedent,<sup>9</sup> would promote copying of patented inventions,<sup>10</sup> and failed to address its effect on the role played by the doctrine of equivalents in preventing infringement by after-arising technology.<sup>11</sup>

This Note argues that the Supreme Court should overrule *Festo*’s “complete bar” rule and adopt a flexible approach to prosecution history estoppel in cases of infringement by after-arising technology. Parts I and II give an overview of patent law and the doctrine of equivalents. Part III examines the relationship between the doctrine of equivalents and after-arising technology. Part IV summarizes the facts and opinions of *Festo*. Part V argues that *Festo*’s strict approach prevents the doctrine of equivalents from accommodating after-arising technology, that the *Festo* majority opinion leads to incompatible results when applied in cases involving after-arising technology, and that the decision conflicts with the patent policy of rewarding pioneer inventions with broad claim scope. This Note concludes that the Supreme Court should permit the flexible approach in all cases of infringement by after-arising technology.

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4. *Graver Tank & Mfg. Co. v. Linde Air Prods. Co.*, 339 U.S. 605, 608 (1950).

5. 234 F.3d 558 (Fed. Cir. 2000) (en banc), *cert. granted*, 69 U.S.L.W. 3779 (June 18, 2001) (No. 00-1543).

6. *Id.* at 563–64.

7. *Id.* at 569.

8. *Id.* at 575.

9. *Id.* at 598, 612 (Michel, J., dissenting), 620 (Linn, J., dissenting), 630 (Newman, J., dissenting).

10. *Id.* at 616 (Michel, J., dissenting), 627 (Linn, J., dissenting), 635–36 (Newman, J., dissenting).

11. *Id.* at 619 (Rader, J., dissenting).

## I. PATENT LAW AND THE DOCTRINE OF EQUIVALENTS

An inventor begins the process of obtaining a patent by sending the Patent and Trademark Office (PTO) an application explaining an invention in detail. A patent issues to the inventor once the PTO determines that the application meets certain statutory requirements. After issuance of a patent, the inventor can sue for patent infringement those who make, use, or sell the invention without authority.<sup>12</sup> During litigation, the court will compare the patent to the accused device. The court can find infringement if the accused device is an exact copy of the patented invention (literal infringement) or if the accused device has elements similar enough to the claimed invention to be equivalent (doctrine of equivalents). In order to prevent a patentee from abusing the doctrine, the doctrine of equivalents is subject to various limitations.

### A. *The Patent Application Process*

The Federal government has exclusive jurisdiction over patents as enumerated by the U.S. Constitution<sup>13</sup> and codified by the 1952 Patent Act.<sup>14</sup> The process of issuing patents is governed by the Patent and Trademark Office (PTO).<sup>15</sup> A patent gives its holder, the patentee, the right to exclude others from making, using, or selling the patented invention for twenty years after the patent application is filed.<sup>16</sup> The PTO grants patents to persons who invent something that is new, useful, and nonobvious.<sup>17</sup>

Under the Patent Act, a patent application must meet three Section 112 requirements of patentability: written description, enablement, and best mode.<sup>18</sup> The specification must contain a written description of the invention in sufficient detail so that one skilled in the art could reasonably conclude that the inventor had possession of the

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12. 35 U.S.C. § 271 (2000).

13. U.S. CONST. art. I, § 8 ("The Congress shall have Power . . . [t]o promote the Progress of Science and useful Arts, by securing for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries . . .").

14. 35 U.S.C. §§ 1–376 (2001).

15. *Id.* § 153.

16. *Id.* § 154.

17. *Id.* §§ 101–03.

18. *Id.* § 112.

invention as of the filing date.<sup>19</sup> Under the enablement requirement, the specification must describe the invention in enough detail to enable a person skilled in the art to make and use the invention without "undue experimentation."<sup>20</sup> Finally, the specification must also include the "best mode" that the inventor knows to carry out the invention.<sup>21</sup>

In addition, the applicant's invention must meet the statutory requirements of novelty and nonobviousness.<sup>22</sup> Novelty and nonobviousness are measured against "prior art," which includes issued patents, patent applications pending at the PTO, and publications disclosing technological discoveries.<sup>23</sup> Novelty requires the invention to be something new.<sup>24</sup> Nonobviousness requires the invention be more than an obvious variation of the prior art as measured by a person with ordinary skill in the art.<sup>25</sup>

The process of applying for a patent involves a series of negotiations between an applicant and a PTO Examiner. Applications that do not meet statutory requirements are rejected by the Examiner.<sup>26</sup> If the Examiner rejects an application, he or she prepares a document informing the applicant that the application has been rejected and stating the reasons for rejection.<sup>27</sup> The applicant may then respond to the Examiner's rejection, either by arguing that the application complies with statutory requirements, or by amending the rejected claims, or both.<sup>28</sup> Nearly all applications are amended during the application process.<sup>29</sup> The Examiner will consider the applicant's arguments and amendments and either issue a patent or reject the claims again.<sup>30</sup> This process continues until the

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19. *Id.* § 112; *Vas-Cath, Inc. v. Mahurkar*, 935 F.2d 1555, 1563-64 (Fed. Cir. 1991).

20. 35 U.S.C. § 112; *In re Wright*, 999 F.2d 1557, 1561 (Fed. Cir. 1993).

21. 35 U.S.C. § 112.

22. *Id.* § 102-03.

23. *Id.* § 102; ALAN L. DURHAM, *PATENT LAW ESSENTIALS: A CONCISE GUIDE* 80 (1999).

24. 35 U.S.C. § 102.

25. *Id.* § 103.

26. 37 C.F.R. § 1.104 (2000).

27. *Id.* § 1.104(a)(2).

28. *Id.* § 1.111.

29. Linda Greenhouse, *Supreme Court To Review Case That Redefined Patent Doctrine*, N.Y. TIMES, June 19, 2001, at C9; see also *Petition for Writ of Certiorari in the Supreme Court of the United States, Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co.*, April 9, 2001, at 2 (stating that the vast majority of the 1.2 million patents now in force were amended during prosecution); *Litton Sys., Inc. v. Honeywell, Inc.*, 140 F.3d 1449, 1455 (Fed. Cir. 1998) (noting the common practice of amending claims during the patent application process).

30. 37 C.F.R. § 1.112 (2000).

Examiner grants an allowance or the Examiner issues a Final Rejection.<sup>31</sup> A Final Rejection may first be appealed to the PTO Board of Patent Appeals, and then to the Court of Appeals for the Federal Circuit.<sup>32</sup> Once a patent issues, the record of the proceedings before the PTO, also called the “prosecution history,”<sup>33</sup> is made available to the public.<sup>34</sup> The prosecution history is reviewed during patent litigation in determining whether a patent has been infringed.<sup>35</sup>

### *B. Patent Infringement*

A patent gives its holder the right to sue those who infringe the patented invention. In order to determine whether a patent has been infringed, courts must employ a two-step analysis.<sup>36</sup> First, a court must interpret the meaning of the claims by examining the claim language, the patent specification, and the prosecution history.<sup>37</sup> Once a court has determined the meaning of the claims, it must determine whether the patent has been infringed by comparing each element of the patent’s claims to the accused device.<sup>38</sup> At this second step, called infringement analysis, a court may find infringement under one of two theories: literal infringement or the doctrine of equivalents.<sup>39</sup> The accused device must contain each and every element of the claimed invention, either literally or equivalently, to infringe the patent.<sup>40</sup>

To prove literal infringement, a patentee must show that an accused device contains every element of a claimed invention.<sup>41</sup> Literal infringement has the benefit of providing the public clear notice as to

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31. *Id.* §§ 1.113 (final rejection), 1.311 (notice of allowance).

32. *Id.* §§ 1.191 (appeal to Board of Patent Appeals), 1.301 (appeal to U.S. Court of Appeals for the Federal Circuit).

33. 5A DONALD S. CHISUM, CHISUM ON PATENTS: A TREATISE ON THE LAW OF PATENTABILITY, VALIDITY, AND INFRINGEMENT § 18.05, at 18-413 (2000).

34. 37 C.F.R. § 1.11.

35. *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 980 (Fed. Cir. 1995) (claim interpretation); CHISUM, *supra* note 33, § 18.05, at 18-413 to 18-415.

36. *Markman*, 52 F.3d at 976.

37. *Id.* (referring to this process as claim interpretation).

38. *Dawn Equip. Co. v. Ky. Farms, Inc.*, 140 F.3d 1009, 1014 (Fed. Cir. 1998).

39. *Id.*

40. *Id.*

41. *Litton Sys., Inc. v. Honeywell, Inc.*, 140 F.3d 1449, 1454 (Fed. Cir. 1998) (“[A]ny deviation from the claim precludes a finding of literal infringement.”).

what subject matter a patent covers.<sup>42</sup> However, literal infringement fails to prevent copyists from pirating claimed inventions by making insubstantial substitutions to the invention's claim elements.<sup>43</sup> Therefore, the courts developed the doctrine of equivalents to prevent such copying.<sup>44</sup>

The doctrine of equivalents provides patentees fair protection against infringement, freeing claim language from its literal meaning.<sup>45</sup> Under the doctrine of equivalents, a patentee can claim infringement by showing that elements of the accused device are equivalent to a claim limitation.<sup>46</sup> In *Graver Tank & Manufacturing Co. v. Linde Air Products Co.*,<sup>47</sup> the Supreme Court recognized the "triple identity" test for equivalency.<sup>48</sup> Under the test, elements of an accused device are equivalent to a claim limitation if they perform "substantially the same function in substantially the same way to obtain the same result."<sup>49</sup>

The doctrine of equivalents strikes a balance between two competing policies of the patent system: providing public notice of patented inventions and providing patentees protection for their inventions.<sup>50</sup> On the one hand, the doctrine provides patentees greater protection than that afforded under literal infringement by preventing "unscrupulous copyists" from avoiding infringement by making insubstantial changes to a patented invention.<sup>51</sup> This greater protection is necessary to encourage public disclosure of inventions.<sup>52</sup> If inventors are not confident that patent law will protect their inventions, they will be more likely to hide

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42. See *Graver Tank & Mfg. Co. v. Linde Air Prods. Co.*, 339 U.S. 605, 607 (1950).

43. *Id.*

44. *Id.*

45. *Id.*

46. *Id.* at 610.

47. 339 U.S. 605 (1950).

48. *Warner-Jenkinson Co. v. Hilton Davis Chem. Co.*, 520 U.S. 17, 39 (1997) (referring to language in the *Graver Tank* decision as the "triple identity" test).

49. *Graver Tank*, 339 U.S. at 608 (quoting *Sanitary Refrigerator Co. v. Winters*, 280 U.S. 30, 42 (1929)).

50. Donald S. Chisum, *The Scope of Protection for Patents After the Supreme Court's Warner-Jenkinson Decision: The Fair Protection-Certainty Conundrum*, 14 SANTA CLARA COMPUTER & HIGH TECH. L.J. 1, 7 (1998).

51. *Warner-Jenkinson*, 520 U.S. at 34.

52. *Graver Tank*, 339 U.S. at 607.

their discoveries, thereby inhibiting other researchers from making further innovations.<sup>53</sup>

On the other hand, the doctrine of equivalents can blur the boundaries defining what a patent protects. When applied broadly, to cover a large scope of equivalents, the doctrine “conflicts with the definitional and public-notice functions of the statutory claiming requirement.”<sup>54</sup> Adequate notice is necessary to permit sound predictions about the outcome of infringement litigation,<sup>55</sup> thereby allowing other researchers to make developments in the same area without fear of litigation.<sup>56</sup> Therefore, while the doctrine of equivalents provides patentees valuable infringement protection, it should not provide such protection by completely sacrificing the notice function of claims.<sup>57</sup>

## II. LIMITATIONS ON THE DOCTRINE OF EQUIVALENTS

The courts have developed certain limitations on the doctrine of equivalents to prevent the doctrine from eliminating the notice function of claims. Among these limitations is prosecution history estoppel, which limits the availability of the doctrine of equivalents to a patentee in infringement litigation. In addition, courts have crafted other limitations, which include the “all elements” rule and the “prior art” limitation.

### A. *Prosecution History Estoppel and the Warner-Jenkinson Presumption*

Prosecution history estoppel prevents a patent holder from using the doctrine of equivalents in litigation to reach subject matter surrendered during the patent application process. The Supreme Court created the *Warner-Jenkinson* presumption to handle situations in which the reason for a claim amendment is unclear from the prosecution history. In such a case, the Court allows no scope of equivalents for the amended claim element.

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53. *See id.*

54. *Warner-Jenkinson*, 520 U.S. at 29.

55. Martin J. Adelman & Gary L. Francione, *The Doctrine of Equivalents in Patent Law: Questions That Pennwalt Did Not Answer*, 137 U. PA. L. REV. 673, 682 (1989).

56. *Id.* at 682–83 (this situation is referred to as “design around”).

57. Chisum, *supra* note 50, at 7.



### 1. *Prosecution History Estoppel*

Prosecution history estoppel prevents a patentee from claiming subject matter that the patentee surrendered during prosecution of the patent.<sup>58</sup> During prosecution, a patentee may have to make narrowing claim amendments to overcome patentability rejections by the PTO,<sup>59</sup> and thereby surrender subject matter that the claims initially covered. In such a case, the patentee is estopped from reaching this subject matter during litigation if the record shows that it was relinquished during prosecution.<sup>60</sup>

Prior to *Festo*, Federal Circuit precedent supported both a “flexible” and a “strict” approach to the scope of equivalents available after prosecution history estoppel.<sup>61</sup> The vast majority of cases took the flexible approach.<sup>62</sup> Under the flexible approach, a narrowing claim amendment does not automatically bar application of the doctrine of equivalents to a claim element.<sup>63</sup> Instead, a court examines the prosecution history to determine what scope of equivalents remains.<sup>64</sup> After examining the record, a court may still find that the doctrine of equivalents is precluded if the potential infringer clearly failed to reach the amended element’s remaining subject matter.<sup>65</sup> Two Federal Circuit cases employed a strict approach.<sup>66</sup> Under the strict approach, a court refuses to examine the reasons for the claim amendment in the

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58. *Cybor Corp. v. FAS Techs., Inc.*, 138 F.3d 1448, 1460 (Fed. Cir. 1998).

59. *Id.*

60. *Warner-Jenkinson Co. v. Hilton Davis Chem. Co.*, 520 U.S. 17, 18–19 (1997).

61. *Compare* *Sextant Avionique, S.A. v. Analog Devices*, 172 F.3d 817 (Fed. Cir. 1999); *Litton Sys., Inc. v. Honeywell, Inc.*, 140 F.3d 1449 (Fed. Cir. 1998); *Hughes Aircraft Co. v. United States*, 140 F.3d 1470 (Fed. Cir. 1998) (flexible approach) *with* *Kinzenbaw v. Deere & Co.*, 741 F.2d 383 (Fed. Cir. 1984); *Prodyne Enters., Inc. v. Julie Ponerantz, Inc.*, 743 F.2d 1581 (Fed. Cir. 1984) (strict approach).

62. CHISUM, *supra* note 33, § 18.05[3][b][i], at 18-497, 18-503.

63. *Hughes*, 140 F.3d at 1476–77.

64. *Id.* at 1476.

65. *Id.* at 1477.

66. *Kinzenbaw*, 741 F.2d 383, 389; *Prodyne*, 743 F.2d 1581, 1583; *see also* *Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co.*, 234 F.3d 558, 610 (Fed. Cir. 2000) (en banc) (Michel, J., dissenting) (stating that the two cases following the strict approach can be reconciled with the flexible approach cases), *cert. granted*, 69 U.S.L.W. 3779 (June 18, 2001) (No. 00-1543); CHISUM, *supra* note 33, § 18.05[3][b][i], at 18-496.

prosecution history and simply precludes applying the doctrine of equivalents to the amended claim element.<sup>67</sup>

## 2. *The Warner-Jenkinson Presumption*

The Supreme Court crafted an important corollary to prosecution history estoppel in *Warner-Jenkinson Co. v. Hilton Davis Chemical Co.*<sup>68</sup> *Warner-Jenkinson* involved a patent owned by Hilton Davis that covered a process for purifying food and drug dyes.<sup>69</sup> The patent claimed that the process operated “at a pH from approximately 6.0 to 9.0.”<sup>70</sup> Subsequent to the issuance of the Hilton Davis patent, Warner-Jenkinson developed a similar filtration process that operated at a pH of 5.0.<sup>71</sup> As a result, Hilton Davis sued Warner-Jenkinson for patent infringement under the doctrine of equivalents.<sup>72</sup>

At issue in the case was the reason Hilton Davis had limited its patent to a pH level of 6.0. When Hilton Davis initially filed its patent application with the PTO, it did not contain a specific pH level limitation.<sup>73</sup> The pH limit of 6.0 was later added to the claims.<sup>74</sup> Under prosecution history estoppel, amendments made for patentability reasons bar the patentee from claiming subject matter given up by the amendment. Yet, because the record did not explain why Hilton Davis had added the lower pH limit of 6.0, it was unclear whether Hilton Davis should be allowed to reach a pH level of 5.0 through the doctrine of equivalents.<sup>75</sup>

In ruling on the case, the Supreme Court crafted what has become known as the “*Warner-Jenkinson* presumption.”<sup>76</sup> When no explanation for a claim amendment is established, a court should presume that the applicant amended the claim due to a “substantial reason related to

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67. CHISUM, *supra* note 33, § 18.05[3][b], at 18-492, 18-496.

68. 520 U.S. 17 (1997).

69. *Id.* at 21.

70. *Id.* at 22.

71. *Id.* at 23.

72. *Id.*

73. *Id.* at 22.

74. *Id.*

75. *Id.* at 41.

76. *Sextant Avionique, S.A. v. Analog Devices, Inc.*, 172 F.3d 817, 830 (Fed. Cir. 1999).

patentability.”<sup>77</sup> In such cases, a court should completely bar the patentee from claiming any equivalents for that particular claim element unless the patentee can show an “appropriate reason for a required amendment.”<sup>78</sup> Prosecution history estoppel precludes the application of the doctrine of equivalents to that amended claim element.<sup>79</sup>

*Warner-Jenkinson* did not specifically rule on whether a claim element maintains a scope of equivalents after prosecution history estoppel.<sup>80</sup> However, Federal Circuit cases,<sup>81</sup> as well as commentators,<sup>82</sup> have interpreted *Warner-Jenkinson* as promoting a scope of equivalents after a narrowing claim amendment made for reasons related to patentability. In *Sextant Avionique, S.A. v. Analog Devices, Inc.*,<sup>83</sup> the Federal Circuit closely examined *Warner-Jenkinson*’s language and rejected the notion that the Supreme Court meant that all claim amendments for reasons related to patentability created a “complete bar” to the doctrine of equivalents.<sup>84</sup> Instead, the “complete bar” rule of the presumption applies only when the patentee fails to establish a reason for the claim amendment.<sup>85</sup>

#### B. Other Limitations on the Doctrine of Equivalents

The courts have developed other limitations that prevent a patentee from abusing the doctrine of equivalents by stretching claim language beyond what the inventor has created. Under the “all elements” rule, each and every element of a claimed invention must be found in an

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77. *Warner-Jenkinson*, 520 U.S. at 33.

78. *Id.*

79. *Id.*

80. CHISUM, *supra* note 33, § 18.05[3][c], at 18-508 to 18-509.

81. *Sextant Avionique*, 172 F.3d at 831; *Litton Sys., Inc. v. Honeywell, Inc.*, 140 F.3d 1449, 1455 (Fed. Cir. 1998) (“[T]he entire context of the Warner-Jenkinson opinion shows that the Supreme Court approved the PTO’s practice of requesting amendments with the understanding that the doctrine of equivalents would still apply to the amended language.”); *id.* at 1457 (“Nowhere did the Supreme Court suggest that such after-arising equivalents would be barred as a matter of law whenever a claim is amended to overcome prior art before the examiner.”); *see also* *Hughes Aircraft Co. v. United States*, 140 F.3d 1470, 1476 (Fed. Cir. 1998) (“In evaluating the reason behind an amendment [related to patentability], a court must determine what subject matter the patentee actually surrendered.”) (citing *Warner-Jenkinson*, 520 U.S. at 33 n.7)).

82. ADELMAN, *supra* note 3, § 3.5, at 3-42.49 to 3-42.50; Chisum, *supra* note 50, at 57–58.

83. 172 F.3d 817 (Fed. Cir. 1999).

84. *Id.* at 831.

85. *Id.*

accused device.<sup>86</sup> The doctrine of equivalents must be applied to individual elements of the claim and not to the invention as a whole.<sup>87</sup> A “one-to-one correspondence” between elements of the claimed invention and the accused device is not necessary.<sup>88</sup> An element of the patent claim can be infringed by a single component of the accused device or a series of components can be combined to make up the claim element.<sup>89</sup> The prior art limitation prevents a patentee from trying to claim something through the doctrine of equivalents that the patent holder could not claim during the patent application process.<sup>90</sup> The scope of equivalents of a claim element may not reach inventions already disclosed by the prior art.<sup>91</sup>

### III. INFRINGEMENT PROTECTION AGAINST AFTER-ARISING TECHNOLOGY

Supreme Court and Federal Circuit precedent underscore the need for the doctrine of equivalents to protect patentees from after-arising technology. The courts define after-arising technology as equivalents that were not known at the time of patent issuance. Related to after-arising technology and the doctrine of equivalents is the pioneer invention doctrine. A pioneer invention is an endeavor in a new field. Pioneer inventions are usually infringed by after-arising technology and, consequently, often rely on the doctrine of equivalents for infringement protection. Lastly, inventions in the unpredictable arts depend on the doctrine of equivalents to cover infringement by after-arising technology.

#### *A. A Primary Purpose of the Doctrine of Equivalents Is To Provide Infringement Protection Against After-Arising Technology*

The Supreme Court and the Federal Circuit have both emphasized that a primary purpose of the doctrine of equivalents is to protect patentees

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86. *Pennwalt Corp. v. Durand-Wayland, Inc.*, 833 F.2d 931, 935 (Fed. Cir. 1987) (en banc); see also *Hughes*, 140 F.3d at 1474.

87. *Warner-Jenkinson Co. v. Hilton Davis Chem. Co.*, 520 U.S. 17, 29 (1997).

88. *Sun Studs, Inc. v. ATA Equip. Leasing, Inc.*, 872 F.2d 978, 989 (Fed. Cir. 1989).

89. *Corning Glass Works v. Sumitomo Elec. U.S.A., Inc.*, 868 F.2d 1251, 1259 (Fed. Cir. 1989).

90. *Wilson Sporting Goods v. David Geoffrey & Assocs.*, 904 F.2d 677, 684 (Fed. Cir. 1990).

91. *Key Mfg. Group, Inc. v. Microdot, Inc.*, 925 F.2d 1444, 1449 (Fed. Cir. 1991).

from after-arising technology.<sup>92</sup> In *Warner-Jenkinson*, the Supreme Court expressly rejected the argument that equivalents should not extend to after-arising technology, by fixing the time when equivalency should be measured.<sup>93</sup> The Court ruled that equivalency should be measured at the time of infringement, not as of the patent issue date.<sup>94</sup> Because knowledge of interchangeability is objective, equivalency is not limited to what was known in the art at the time the patent was issued.<sup>95</sup> Therefore, the doctrine of equivalents can apply to after-arising technology.<sup>96</sup>

The Federal Circuit has applied the doctrine of equivalents to after-arising technology.<sup>97</sup> In doing so, it has stressed that “[p]atent policy supports application of the doctrine of equivalents to a claim element . . . in the case of ‘after-arising’ technology because a patent draftsman has no way to anticipate and account for later developed substitutes for a claim element.”<sup>98</sup> According to the Federal Circuit, this is necessary to prevent infringers from pirating an invention by using new technology to make an insubstantial change in the claimed invention.<sup>99</sup>

For example, in *Hughes Aircraft Co. v. United States*,<sup>100</sup> the Federal Circuit found the after-arising technology presented by the accused device equivalent to the claimed invention under the doctrine of equivalents.<sup>101</sup> *Hughes* involved a patent disclosing a device for controlling the orientation of a spacecraft from a ground control station.<sup>102</sup> The accused device employed microprocessors, not available at the time the patent application was filed, to compute some of the

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92. See *Warner-Jenkinson*, 520 U.S. at 37; *Al-Site Corp. v. VSI Int'l, Inc.*, 174 F.3d 1308, 1320 n.2 (Fed. Cir. 1999); *Chiuminatta Concrete Concepts, Inc. v. Cardinal Indus., Inc.*, 145 F.3d 1303, 1310 (Fed. Cir. 1998); *Hughes Aircraft Co. v. United States*, 140 F.3d 1470, 1475 (Fed. Cir. 1998); *Litton Sys., Inc. v. Honeywell, Inc.*, 140 F.3d 1449, 1455, 1457 (Fed. Cir. 1998); *Pall Corp. v. Micron Separations, Inc.*, 66 F.3d 1211, 1220 (Fed. Cir. 1995).

93. *Warner-Jenkinson*, 520 U.S. at 37.

94. *Id.*

95. *Id.*

96. *Id.*

97. See, e.g., *Pall Corp.*, 66 F.3d at 1220; *Hughes*, 140 F.3d at 1477.

98. *Al-Site Corp. v. VSI Int'l, Inc.*, 174 F.3d 1308, 1321 n.2 (referring to means-plus-function claims).

99. *Pennwalt Corp. v. Durand-Wayland, Inc.*, 833 F.2d 931, 938 (Fed. Cir. 1987) (en banc).

100. 140 F.3d 1470 (Fed. Cir. 1998).

101. *Hughes*, 140 F.3d at 1477.

102. *Id.* at 1475.

positioning requirements on board.<sup>103</sup> The court determined that the change was the result of technology not available until after the patent issued.<sup>104</sup> The only difference was that the function was being performed on board the satellite instead of on the ground.<sup>105</sup> Therefore, the accused device infringed the patent under the doctrine of equivalents.<sup>106</sup>

### B. “Pioneer” Inventions

A pioneer invention is one that creates an entirely new function or makes a distinctive leap in science.<sup>107</sup> Broad literal claims can be written for pioneer inventions because, by definition, pioneer inventions are not restricted by prior art.<sup>108</sup> Accordingly, pioneer inventions will have no prosecution history relating to prior art rejections. However, pioneer inventions are susceptible to rejections under Section 112 because the patent drafter and the Examiner are trying to interpret a new field of technology.<sup>109</sup> As a result, applications for pioneer patents are frequently amended because language in the patent application typically needs refinement as the inventor works toward patent issuance.<sup>110</sup>

Infringement protection against after-arising technology is a particular concern for pioneer inventions. Pioneer inventions are often infringed by after-arising technology because they are advances in a new area of science.<sup>111</sup> Infringement will occur from developments made after the invention becomes public. Therefore, pioneer inventions need the

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103. *Id.* at 1472–73; see also CHISUM, *supra* note 33, § 18.04(3)(c), at 18–386.

104. *Id.* at 1475.

105. *Id.*

106. *Id.* at 1477.

107. *Boyden Power-Brake Co. v. Westinghouse*, 170 U.S. 537, 569 (1898).

108. *Augustine Med., Inc. v. Gaymar Indus., Inc.*, 181 F.3d 1291, 1301 (Fed. Cir. 1999).

109. *Moore v. United States*, 211 U.S.P.Q. 800, 806 (Ct. Cl. 1981).

110. *Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co.*, 234 F.3d 558, 622 (Fed. Cir. 2000) (en banc) (Linn, J., dissenting) (“For inventions in rapidly evolving fields, application filings are often made while the inventions are still in nascent stages, i.e., early in the evolutionary process, necessitating inevitable and sometimes considerable fine tuning of claim language after the initial application filings have been made.”); *id.* at 624 (Linn, J., dissenting) (“[E]liminating all flexibility in the scope of claim limitations amended for a statutory purpose reflects unjustified faith in the draftsman to select language to perfectly describe a new and unobvious invention at an early stage of the development process.”).

111. Matthew C. Phillips, *Taking a Step Beyond Maxwell To Tame the Doctrine of Equivalents*, 11 FORDHAM INTELL. PROP. MEDIA & ENT. L.J. 155, 183–84 (2000).

doctrine of equivalents for fair protection against infringers who utilize after-arising technology to avoid literal infringement.

Pioneer inventions gain a broad range of equivalents during an infringement suit because application of the doctrine of equivalents is not limited by prior art or prosecution history estoppel.<sup>112</sup> Pioneer inventions are not analyzed under a different standard than other inventions, but the nature of pioneer inventions usually results in broad equivalents.<sup>113</sup> A broader range of equivalents for pioneering inventions serves as an incentive for greater leaps in innovation. This incentive is necessary because research into a new area is expensive and time-consuming, and potentially unsuccessful.<sup>114</sup> Hence, the inventor who succeeds in developing a pioneering invention deserves to be rewarded with a broad range of equivalents.<sup>115</sup>

### C. *Unpredictable Arts*

Inventions in the unpredictable arts cannot capture after-arising technology through broad claims because of a failure to meet the enablement requirement of patentability. Due to the difficulty in meeting the enablement requirement, patents of unpredictable arts typically must have narrower claims than those covering the predictable arts.<sup>116</sup> To meet the statutory enablement requirement, the inventor must describe the invention in enough detail to enable a person skilled in the art to make and use the invention without "undue experimentation."<sup>117</sup> One of the factors to consider when determining whether a disclosure requires

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112. *Augustine Med.*, 181 F.3d at 1301.

113. *Texas Instruments, Inc. v. U.S. Int'l Trade Comm'n*, 846 F.2d 1369, 1370 (Fed. Cir. 1988); see also *Sun Studs, Inc. v. ATA Equip. Leasing, Inc.*, 872 F.2d 978, 987 (Fed. Cir. 1989) ("[T]he 'pioneer' is not a separate class of invention, carrying a unique body of law. The wide range of technological advance between pioneering breakthrough and modest improvement accommodates gradations in scope of equivalency.").

114. Christinia Y. Lai, Comment: *A Dysfunctional Formalism: How Modern Courts Are Undermining the Doctrine of Equivalents*, 44 UCLA L. REV. 2031, 2040 (1997).

115. *Id.*; see also John R. Thomas, *The Question Concerning Patent Law and Pioneer Inventions*, 10 HIGH TECH. L.J. 35, 58-59 (1995).

116. See *In re Fisher*, 427 F.2d 833, 839 (C.C.P.A. 1970); see also *Enzo Biochem, Inc. v. Calgene, Inc.*, 188 F.3d 1362, 1376 (Fed. Cir. 1999) (finding that broad claims to genetic antisense technology, which had been rejected 10 times by PTO for lack of enablement before being allowed, were invalid for lack of enablement).

117. 35 U.S.C. § 112 (2000); *Genentech, Inc. v. Novo Nordisk A/S*, 108 F.3d 1361, 1365 (Fed. Cir. 1997) (quoting *In re Wright*, 999 F.2d 1557, 1561 (Fed. Cir. 1993)).

“undue experimentation” is the predictability or unpredictability of the art of the invention.<sup>118</sup>

The Federal Circuit has routinely found broad claims in the unpredictable arts to be invalid because they fail to meet the enablement requirement.<sup>119</sup> To meet the enablement requirement, the unpredictable arts require a higher degree of disclosure.<sup>120</sup> For example, biotechnology and chemistry are considered unpredictable arts because scientists cannot predict how minor chemical changes will affect chemical reactions or physiological activities.<sup>121</sup> Because of the unpredictability of the art, the claims must more closely resemble the specific embodiments disclosed in the specification.<sup>122</sup> The inventor must present several working examples of an unpredictable art to show that no undue experimentation is required for a person skilled in the art to make and use the claimed invention. A patent on an unpredictable art cannot support a broad claim because application of the disclosed embodiments involves processes that science does not yet fully understand.<sup>123</sup> Thus, a patent application in the unpredictable arts with broad claims will most likely fail the enablement requirement.

In contrast, patents covering predictable arts require less specificity to meet the enablement requirement. Inventions in the predictable arts, such as mechanical or electrical inventions, can enable broad claims.<sup>124</sup> One embodiment of a predictable art supports a broad claim because disclosure of one variation of the invention will enable a person skilled in the art to substitute other variations without undue experimentation.<sup>125</sup> In

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118. *In re Wands*, 858 F.2d 731, 737 (Fed. Cir. 1988). The factors include: “(1) the quantity of experimentation necessary, (2) the amount of direction or guidance presented, (3) the presence or absence of working examples, (4) the nature of the invention, (5) the state of the prior art, (6) the relative skill of those in the art, (7) the predictability or unpredictability of the art, and (8) the breadth of the claims.” *Id.*

119. See Margaret Sampson, Comment: *The Evolution of the Enablement and Written Description Requirements Under 35 U.S.C. § 112 in the Area of Biotechnology*, 15 BERKELEY TECH. L.J. 1233, 1240–52 (2000).

120. *In re Vaeck*, 947 F.2d 488, 496 (Fed. Cir. 1991) (stating that higher level of disclosure is required where “diverse and poorly understood” subject matter is involved).

121. Sampson, *supra* note 119, at 1240 (citing *In re Fisher*, 427 F.2d 833, 839 (C.C.P.A. 1970)).

122. DURHAM, *supra* note 23, at 72.

123. Sampson, *supra* note 119, at 1248.

124. *In re Fisher*, 427 F.2d at 839; see also *In re Spectra-Physics, Inc. v. Coherent, Inc.*, 827 F.2d 1524, 1533 (Fed. Cir. 1987).

125. *In re Fisher*, 427 F.2d at 839; *Spectra-Physics*, 827 F.2d at 1533.



the predictable arts, the claims do not have to closely mimic the disclosed embodiments to satisfy the enablement requirement.

#### IV. AFTER *FESTO*, PROSECUTION HISTORY ESTOPPEL PRECLUDES THE APPLICATION OF THE DOCTRINE OF EQUIVALENTS

In *Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co.*,<sup>126</sup> the Federal Circuit held that a narrowing claim amendment that creates prosecution history estoppel completely bars application of the doctrine of equivalents to the amended claim element.<sup>127</sup> The court reasoned that the complete bar would ensure the notice function of claims by eliminating the uncertainty in determining whether an element maintains a scope of equivalents after a narrowing claim amendment.<sup>128</sup> The Federal Circuit's strict approach gave rise to numerous dissents. The dissenting judges argued that the majority decision contradicted precedent, promoted copying, and discouraged technological innovation.<sup>129</sup> The dissenters also stressed that the majority decision would hinder a primary justification for the doctrine of equivalents: providing patentees infringement protection against after-arising technology.<sup>130</sup>

##### A. *Procedural History of Festo*

*Festo* involved an infringement lawsuit concerning two patents owned by the Festo Corporation (Festo). Festo sued Shoketsu Kinzoku Kogyo Kabushiki Co., Ltd. (also known as the SMC Corporation) and SMC Pneumatics, Inc. (collectively referred to as SMC), in the United States District Court for the District of Massachusetts for patent infringement.<sup>131</sup> Festo's patents disclosed an invention consisting of rodless cylinders that are magnetically coupled to a yoke or other structure.<sup>132</sup> The district court

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126. 234 F.3d 558 (Fed. Cir. 2000) (en banc), *cert. granted*, 69 U.S.L.W. 3779 (June 18, 2001) (No. 00-1543).

127. *Id.* at 564.

128. *Id.* at 576.

129. *See infra* Parts IV.C.1 and C.3.

130. *See infra* Part IV.C.2.

131. *Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co.*, 172 F.3d 1361, 1364 (Fed. Cir. 1999).

132. *Id.*

found infringement of Festo's patents under the doctrine of equivalents.<sup>133</sup> SMC appealed the findings of infringement to the Court of Appeals for the Federal Circuit, which in turn affirmed the district court's judgments.<sup>134</sup>

The United States Supreme Court granted a petition for a writ of certiorari by SMC. The Supreme Court vacated the Federal Circuit decision, and remanded the case to the Federal Circuit for further consideration in light of its holding in *Warner-Jenkinson*.<sup>135</sup> On remand, the Federal Circuit affirmed the summary judgment with respect to one of Festo's patents,<sup>136</sup> but vacated the judgment in regard to the other, and remanded the case to the district court for re-determination.<sup>137</sup>

The Federal Circuit granted a petition to rehear the appeal en banc.<sup>138</sup> The court's previous judgment was vacated and the accompanying judgment withdrawn.<sup>139</sup> Although the court was presented with five questions, this Note addresses the third question: If a claim amendment creates prosecution history estoppel, under *Warner-Jenkinson* what range of equivalents, if any, is available under the doctrine of equivalents for the claim element so amended?<sup>140</sup>

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133. *Id.* at 1365.

134. *Id.*

135. *Id.*

136. *Id.* at 1374.

137. *Id.* at 1380-81.

138. *Festo*, 187 F.3d 1381, 1381 (Fed. Cir. 1999).

139. *Id.*

140. *Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co.*, 234 F.3d 558 (Fed. Cir. 2000) (en banc), cert. granted, 69 U.S.L.W. 3779 (June 18, 2001) (No. 00-1543). The court also addressed four additional questions:

First, the court held that "a narrowing amendment made for any reason related to the statutory requirements for a patent will give rise to prosecution history estoppel with respect to the amended claim element." *Id.* at 566.

Second, the court stated that "a voluntary amendment that narrows the scope of a claim for a reason related to the statutory requirements for a patent will give rise to prosecution history estoppel as to the amended claim element." *Id.* at 568.

Next, "when no explanation for a claim amendment is established, no range of equivalents is available for the claim element so amended." *Id.* at 578.

Finally, the Federal Circuit declined to answer the fifth question because the court found no infringement under the doctrine of equivalents. *Id.* at 578.

*B. The Majority Opinion*

The *Festo* majority reasoned that “when a claim amendment creates prosecution history estoppel with regard to a claim element, there is no range of equivalents available for the amended claim element. Application of the doctrine of equivalents to the claim element is completely barred.”<sup>141</sup> Since narrowing claim amendments were made during prosecution of the patents and *Festo* could not establish reasons unrelated to patentability for the amendments, no range of equivalents was available for the amended claim elements.<sup>142</sup> Thus, SMC did not infringe either of *Festo*’s patents.<sup>143</sup>

The majority reviewed Supreme Court precedent, but found no cases that had decided whether a claim element that was narrowed by an amendment that gave rise to prosecution history estoppel was entitled to a range of equivalents.<sup>144</sup> According to the majority, *Warner-Jenkinson* did not speak directly to the issue.<sup>145</sup> Rather, the majority found that *Warner-Jenkinson*’s holding applied only to a range of equivalents that is available when there is no explanation for the amendment in the prosecution history.<sup>146</sup> Thus, the majority concluded that the Supreme Court had never ruled on the precise issue before the *Festo* court.<sup>147</sup>

Consequently, the majority turned to Federal Circuit precedent for guidance, and identified two lines of authority—the strict approach and the flexible approach.<sup>148</sup> The majority rejected the flexible approach for several reasons. First, it stated that after nearly twenty years of experience handling patent appeals, the flexible approach was unworkable because it failed to produce consistent results that could be relied upon by the marketplace.<sup>149</sup> Second, the flexible approach opposed the notice function of claims and created uncertainty in patent law.<sup>150</sup> In contrast, the strict approach would create certainty—once a narrowing

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141. *Id.* at 563–64.

142. *Id.* at 564.

143. *Id.*

144. *Id.* at 571.

145. *Id.* at 569.

146. *Id.*

147. *Id.* at 571.

148. *Id.* at 573–74.

149. *Id.* at 574–75.

150. *Id.*

amendment for patentability is made, the patentee and the public have notice that the element is limited to literal infringement.<sup>151</sup> Hence, neither the public nor the patentee would need to pay for expensive litigation to determine the remaining scope of equivalents after a narrowing amendment.<sup>152</sup> Third, the strict approach would encourage technological innovation.<sup>153</sup> The certainty and predictability created by the strict approach would minimize the fear of litigation surrounding an amended claim's remaining scope of equivalents.<sup>154</sup> Consequently, this would stimulate investment in research and lead to greater innovation.<sup>155</sup>

### *C. The Dissents*

The dissenting judges disagreed with the majority's decision regarding the scope of equivalents available after prosecution history estoppel. The dissenters argued that Supreme Court and Federal Circuit precedent advocated a flexible approach. They also predicted that *Festo* would lead to an increase in blatant copying of patents, a decrease in the value of issued patents, a decline in technological innovation, and a limitation on the ability of the doctrine of equivalents to protect patentees from infringement by after-arising technology.

#### *1. The Majority Opinion Contradicts Supreme Court and Federal Circuit Precedent*

The dissenting judges rejected the majority's claim that the Supreme Court had never spoken on the issue of the scope of equivalents after prosecution history estoppel.<sup>156</sup> Judge Michel reviewed eight Supreme Court cases dating back to the nineteenth century and concluded that they established that a claim element may retain a range of equivalents even after a patent applicant makes a narrowing claim amendment.<sup>157</sup>

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151. *Id.* at 577.

152. *Id.*

153. *Id.*

154. *Id.*

155. *Id.* at 577–78.

156. *Festo*, 234 F.3d at 601 (Michel, J., dissenting), 620 (Linn, J., dissenting), 631–32 (Newman, J., dissenting).

157. *Id.* at 602–09 (Michel, J., dissenting). Judge Michel noted that the Supreme Court cited these cases in the *Warner-Jenkinson* decision, thereby endorsing their analysis and holdings. *Id.* at 609 (Michel, J., dissenting).

The dissenting judges also argued that the majority decision conflicted with *Warner-Jenkinson*.<sup>158</sup> According to the dissenters, the Supreme Court rejected a bright-line rule in *Warner-Jenkinson*, which would have precluded the application of the doctrine of equivalents to a claim element that had been narrowed during prosecution.<sup>159</sup>

Several of the dissenting judges argued that Federal Circuit precedent overwhelmingly supported the flexible approach to prosecution history estoppel.<sup>160</sup> Judge Michel characterized the majority position as a "sudden shift" in the court's precedent because nearly all cases since 1983 took a flexible approach.<sup>161</sup> According to Judge Michel, only two cases took the strict approach, and even those cases did not actually hold that narrowing amendments are always a complete bar to infringement by equivalents.<sup>162</sup> Rather, the courts in those two cases took a flexible approach but found that the patentees had surrendered all of the pertinent subject matter.<sup>163</sup>

## 2. *The Strict Approach Frustrates the Infringement Protection Against After-Arising Technology Provided by the Doctrine of Equivalents*

In his dissent, Judge Rader contended that the majority decision ignored the purpose of the doctrine of equivalents—to protect patentees from infringement by after-arising technology. Judge Rader stressed that a primary justification for the doctrine of equivalents is to protect patentees from infringement by after-arising technology.<sup>164</sup> Without the doctrine of equivalents, copyists could easily circumvent infringement by substituting new technology for a claim element.<sup>165</sup> Furthermore, he described *Warner-Jenkinson* as acknowledging that the doctrine of

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158. *Id.* at 611–12, 616 (Michel, J., dissenting), 620 (Linn, J., dissenting), 631 (Newman, J., dissenting).

159. *Id.* at 618 (Michel, J., dissenting), 620 (Linn, J., dissenting), 633 (Newman, J., dissenting).

160. *Id.* at 610 (Michel, J., dissenting), 628 (Linn, J., dissenting), 634–35 (Newman, J., dissenting).

161. *Id.* at 610 (Michel, J., dissenting). Judge Michel examined cases from 1983 to 2000 and concluded that the court had approved the flexible approach in over 50 cases. *Id.* at 613 (Michel, J., dissenting).

162. *Id.* at 610 (Michel, J., dissenting) (citing *Kinzenbaw v. Deere & Co.*, 741 F.2d 383 (Fed. Cir. 1984) and *Prodyne Enters., Inc. v. Pomerantz*, 743 F.2d 1581 (Fed. Cir. 1984)).

163. *Id.* at 610–11 (Michel, J., dissenting); *see also id.* at 628–29 (Linn, J., dissenting).

164. *Id.* at 619 (Rader, J., dissenting).

165. *Id.*

equivalents accommodates after-arising technology.<sup>166</sup> Finally, Judge Rader argued that the majority opinion “defies logic” because “[a]ll patent protection for amended claims is lost when it comes to after-arising technology, while the doctrine of equivalents will continue to accommodate after-arising technology in unamended claims.”<sup>167</sup> Such an outcome was illogical according to Judge Rader because after-arising technology, by definition, does not exist at the time of patent issuance; therefore, an applicant could not have given up such subject matter when a claim was amended.<sup>168</sup>

### 3. *The Strict Approach Will Promote Copying of Patented Inventions and Stifle Innovation*

The dissenters argued that the strict approach provides individuals with a way to copy patented inventions without fear of infringement liability.<sup>169</sup> In Judge Michel’s view, a savvy copyist could search the prosecution history of a competitor and exploit an amended claim element by substituting an equivalent in his own product.<sup>170</sup> In effect, copyists get a free ride, using the prosecution history as a roadmap to pirate the patentee’s invention.<sup>171</sup>

The dissenters also contended that potential copying will decrease the value of issued patents and increase the cost of prosecuting a new patent.<sup>172</sup> Unexpired patents, written under the assumption that courts would take a flexible approach to prosecution history estoppel, would no longer prevent copying.<sup>173</sup> According to the dissenters, the cost of obtaining a patent will increase because it will become exceedingly difficult to obtain a patent protected by the doctrine of equivalents.<sup>174</sup> Presently, patent applications frequently receive patentability rejections and the applicant makes narrowing amendments in response.<sup>175</sup> However,

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166. *See id.*

167. *Id.*

168. *Id.* at 619–20 (Rader, J., dissenting).

169. *Id.* at 616 (Michel, J., dissenting), 627 (Linn, J., dissenting).

170. *Id.*

171. *Id.* at 616 (Michel, J., dissenting), 627 (Linn, J., dissenting).

172. *Id.* at 618 (Michel, J., dissenting), 624 (Linn, J., dissenting).

173. *Id.* at 618–19 (Michel, J., dissenting).

174. *Id.* at 618 (Michel, J., dissenting), 624 (Linn, J., dissenting).

175. *Id.* at 618–19 (Michel, J., dissenting), 622 (Linn, J., dissenting).

according to the majority's opinion, an applicant who makes narrowing claim amendments also relinquishes the doctrine of equivalents in future litigation.<sup>176</sup> Therefore, an applicant who wishes to overcome any patentability rejections and maintain the infringement protection provided by the doctrine of equivalents is faced with two expensive alternatives: appeal rejections to the PTO and the court<sup>177</sup> or engage in extensive pre-filing prior art searches.<sup>178</sup>

The dissenters warned that the ease of copying patented inventions could decrease technological innovation.<sup>179</sup> According to the dissenters, inadequate protection of patents would lead to a loss of potential profits, which in turn would lead to a decrease in investment for new technological research.<sup>180</sup> In addition, incentives to license inventions would be eliminated because the potential licensee could simply copy the invention without fear of infringement.<sup>181</sup> Furthermore, the costs involved in an application appeals process would force some inventors to abandon their inventions or maintain them as trade secrets.<sup>182</sup> In particular, these extra costs of prosecution would hurt the individual inventors and startup companies that the patent system was meant to protect.<sup>183</sup> In the end, according to the dissenters, the extra cost would also harm the public, as it is the public who suffers when an inventor fails to disclose an invention.<sup>184</sup>

#### V. *FESTO* UNDERMINES THE PURPOSE OF THE DOCTRINE OF EQUIVALENTS AND LEAVES PATENTEES WITHOUT RECOURSE AGAINST INFRINGEMENT BY AFTER-ARISING TECHNOLOGY

The *Festo* court erred in implementing the strict approach to prosecution history estoppel as it virtually eliminates infringement protection against after-arising technology provided by the doctrine of

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176. *Id.* at 563-64.

177. *Id.* at 618 (Michel, J., dissenting).

178. *Id.* at 624 (Linn, J., dissenting).

179. *See id.* at 624 (Linn, J., dissenting), 641 (Newman, J., dissenting).

180. *Id.* at 627 (Linn, J., dissenting), 641 (Newman, J., dissenting).

181. *Id.* at 619 (Michel, J., dissenting).

182. *Id.* at 618 (Michel, J., dissenting).

183. *Id.* at 624 (Linn, J., dissenting).

184. *Id.* at 618 (Michel, J., dissenting); *see also id.* at 621, 624 (Linn, J., dissenting), 641 (Newman, J., dissenting).

equivalents. The *Festo* majority misread *Warner-Jenkinson* regarding the scope of equivalents after prosecution history estoppel because *Warner-Jenkinson* implies that a scope of equivalents is available after a narrowing claim amendment has been made for a patentability reason. In addition, *Festo* leads to absurd results in the context of after-arising technology. Moreover, the *Festo* decision conflicts with patent law's policy of rewarding pioneer inventions. The Supreme Court should overrule *Festo* and apply the flexible approach to prosecution history estoppel in cases of infringement by after-arising technology.

A. *Festo Leaves Patentees Vulnerable to Infringement by After-Arising Technology*

*Festo*'s strict approach to prosecution history estoppel frustrates the ability of the doctrine of equivalents to protect patentees against after-arising technology. A primary purpose of the doctrine of equivalents is to provide protection against after-arising technology.<sup>185</sup> This protection is necessary because, by definition, after-arising technology is unknown at the time the claims are drafted.

Under *Festo*, a patentee loses the protection provided by the doctrine of equivalents if the claims are amended during prosecution of the patent.<sup>186</sup> Yet, patent applications are amended routinely in present patent practice. Therefore, most patents will not enjoy the protection against after-arising technology provided by the doctrine of equivalents.

It is unclear whether the *Festo* majority considered the effect of its decision on infringement protection against after-arising technology. Nowhere in its opinion does the majority address the clear need for the doctrine of equivalents to accommodate after-arising technology. The court failed to correctly apply Supreme Court and Federal Circuit precedent, which states that the doctrine of equivalents protects patentees from infringement by after-arising technology.<sup>187</sup> In addition, the majority failed to respond to Judge Rader's dissent, which warned of the

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185. See *supra* note 92 and accompanying text; *Festo*, 234 F.3d at 619 (Rader, J., dissenting); Martin J. Adelman, *Is the Use of the Doctrine of Equivalents To Fix Mistakes a Mistake?*, 27 N. KY. L. REV. 1021, 1023 (2000) ("[C]overing after-arising equivalents should be the central function of a judicially administered doctrine of equivalents.").

186. *Festo*, 234 F.3d at 563–64.

187. See *supra* note 92 and accompanying text.



absurd results that *Festo* would have when applied to cases of after-arising technology.<sup>188</sup>

The *Festo* majority's assertion that the increase in notice by the strict approach would promote innovation is incorrect. The *Festo* majority concluded that the "complete bar" rule would promote innovation by giving researchers certainty as to the scope of a patent's claims.<sup>189</sup> A claim that was narrowed during prosecution would be limited to its literal terms, thereby permitting inventors to design around the patent without fear of infringement litigation over the remaining scope of equivalents.<sup>190</sup>

However, the "complete bar" rule will actually encourage copying of patented inventions and thus hinder future innovation. The purpose of the patent system is to encourage technological innovation by protecting a patentee's inventions.<sup>191</sup> One dissenting judge cited empirical studies showing that a loss of potential profits due to weak patent protection reduces the amount of investment in new technology research.<sup>192</sup> By restricting the availability of the doctrine of equivalents, *Festo* decreases the protection provided by a patent and, thus, diminishes the financial value of a patent. Consequently, the incentive to obtain a patent is reduced, discouraging public disclosure of innovation.<sup>193</sup>

Moreover, the *Festo* majority's "complete bar" rule fails to increase the notice function of claims in the context of after-arising technology. The notice function of claims is inherently murky, especially when involving after-arising technology.<sup>194</sup> The *Festo* court concluded that when claims are restricted to their literal terms, uncertainty regarding infringement is eliminated.<sup>195</sup> By definition, after-arising technology was not known at the time the claims were drafted. Therefore, even when only literal infringement applies, it is unclear whether the claims cover

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188. See *id.* at 619–20 (Rader, J., dissenting).

189. *Id.* at 577.

190. *Id.*

191. *Bonito Boats, Inc. v. Thunder Craft Boats, Inc.*, 489 U.S. 141, 150–51 (1989); *Festo*, 234 F.3d at 621 (Linn, J., dissenting).

192. *Festo*, 234 F.3d at 641 (Newman, J., dissenting).

193. See Joseph N. Hosteny, *Does Festo Change Patent Prosecution?*, INTELL. PROP. TODAY, May 2001, at 45.

194. Cf. Brief for Amicus Curiae Chiron Corporation in Support of Respondent, *Warner-Jenkinson Co. v. Hilton Davis Chem. Co.*, 520 U.S. 17 (1997), available at 1996 WL 254689, \*19–20.

195. *Festo*, 234 F.3d at 575–76.

after-arising technology because the claims were drafted without after-arising technology in mind.

*B. Festo Did Not Appropriately Apply Warner-Jenkinson*

The *Festo* majority failed to consider the language of the *Warner-Jenkinson* decision regarding the scope of equivalents available after prosecution history estoppel. The majority read *Warner-Jenkinson* as only addressing cases of unexplained amendments, and concluded that the opinion did not speak to the issue of a range of equivalents after prosecution history estoppel.<sup>196</sup> In such a situation, the doctrine of equivalents would be completely barred.<sup>197</sup> The patentee could only avoid the complete bar rule by establishing that the amendment was made for reasons unrelated to patentability.<sup>198</sup> In effect, the *Festo* majority drew *Warner-Jenkinson*'s "complete bar" line between reasons related to patentability and reasons unrelated to patentability.<sup>199</sup> According to the *Festo* majority, a patentee must prove that a claim element was amended for reasons unrelated to patentability; if the patentee fails this burden, then the prosecution history bars the doctrine of equivalents for that element.<sup>200</sup>

*Warner-Jenkinson* holds that the complete bar to the doctrine of equivalents applies only when the *Warner-Jenkinson* presumption arises and cannot be rebutted.<sup>201</sup> In other words, when a patentee cannot prove why a claim element was narrowed, a court should presume that the claim was amended for a reason related to patentability and therefore the claim should have no scope of equivalents.<sup>202</sup> If neither the prosecution history nor the patentee can show the reason for an amendment, a court has no information to determine what subject matter was relinquished by

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196. *Id.*

197. *Id.*

198. *Id.* at 586.

199. *Id.* Judge Gajarsa, a member of the *Festo* majority, argued in another case that *Warner-Jenkinson* equates amendments made for unknown reasons with amendments made for patentability reasons, both of which should create a complete bar to the doctrine of equivalents. *Litton Sys., Inc. v. Honeywell, Inc.*, 145 F.3d 1472, 1475 (Fed. Cir. 1998) (Gajarsa, J., dissenting).

200. *Festo*, 234 F.3d at 586.

201. *Warner-Jenkinson Co. v. Hilton Davis Chem. Co.*, 520 U.S. 17, 33–34 (1997).

202. *Id.* at 33.

the patent applicant.<sup>203</sup> In such a situation, in deference to the policy of notice, the court must assume the worst case scenario—that the applicant gave up all scope of equivalents for that claim element.<sup>204</sup>

In addition, the *Festo* majority ignored what *Warner-Jenkinson* suggested regarding the scope of equivalents available for a claim element following a patentability amendment. As the majority correctly stated, *Warner-Jenkinson*'s holding did not directly address this issue.<sup>205</sup> However, as Federal Circuit cases<sup>206</sup> and commentators<sup>207</sup> have recognized, *Warner-Jenkinson* implies that a scope of equivalents is available after a narrowing claim amendment has been made for reasons related to patentability. The Supreme Court rejected a bright-line rule invoking a complete bar regardless of the reasons for a claim amendment.<sup>208</sup> Such a rule would upset the expectation of patent applicants and the PTO that a flexible approach to estoppel would be available.<sup>209</sup> The PTO rejects patent applications based on the expectation that narrowing amendments made by the patent applicant will not automatically preclude all range of equivalents.<sup>210</sup> The Court avers that the reasons for a claim amendment must be explored.<sup>211</sup>

C. *The Festo Decision Leads to Odd Results in Protecting Patentees from Infringement by After-Arising Technology*

*Festo*'s complete bar rule leads to absurd results when applied to after-arising technology. While two claims may have identical scope, an amended claim will be precluded from the doctrine of equivalents while an unamended claim will not. Also, *Festo* creates inequality between the predictable arts and the unpredictable arts. Because patent applicants in the unpredictable arts cannot write broad claims that meet the enablement requirement, these inventions will receive less protection than predictable arts.

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203. *Warner-Jenkinson*, 520 U.S. at 33–34; see also *Sextant Avionique, S.A. v. Analog Devices*, 172 F.3d 817, 831–32 (Fed. Cir. 1999).

204. *Sextant Avionique*, 172 F.3d at 831–32.

205. See *supra* notes 145–147 and accompanying text.

206. See *supra* note 81.

207. See *supra* note 82.

208. See *Warner-Jenkinson*, 520 U.S. at 32.

209. See *id.* at 32 n.6.

210. See *id.* at 32.

211. See *id.* at 33 n.7.

1. *Festo Protects Unamended Claims but Not Amended Claims*

The primary purpose of the doctrine of equivalents is to protect patentees from infringement by after-arising technology.<sup>212</sup> *Festo* creates incongruous results because it protects patents with unamended claims against after-arising technology, but not patents with amended claims.<sup>213</sup> Patentees cannot rely on literal infringement to protect their rights against technology that was not known at the time the patent was drafted.

Patentees should be able to bring an infringement suit under the doctrine of equivalents against future technologies regardless of whether a claim was amended. A patent applicant could not have given up subject matter that was not known at the time of the claim amendment. A patent system must include methods to handle after-arising equivalents that were not known, and thus not claimable, at the time the meaning of the claims was fixed.<sup>214</sup> Because the meaning of claims is fixed at the issue date, the doctrine of equivalents must be available to all patentees to protect themselves against after-arising technology.

2. *After Festo, Predictable Arts Can Still Use Literal Infringement for Protection from After-Arising Technology, but Unpredictable Arts Cannot*

A patentee barred by *Festo* from applying the doctrine of equivalents may still find infringement under literal infringement if the invention is a predictable art, but would have no such opportunity if the art is unpredictable. *Festo* creates unequal protection for different types of technologies. The complete bar rule of *Festo* leaves patentees of unpredictable arts with no means of enforcing their rights against infringers using after-arising technology.

Patents in the unpredictable arts depend on the doctrine of equivalents for protection against infringement by after-arising technology. The patentee cannot disclose the after-arising technology because it was not known at the time of patent issuance. Because the claims of unpredictable arts are limited to the specific embodiments disclosed in the specification, a patent in the unpredictable arts cannot reach after-

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212. See *Adelman*, *supra* note 185, at 1023.

213. 234 F.3d 558, 619 (Fed. Cir. 2000) (en banc) (Rader, J., dissenting), *cert. granted*, 69 U.S.L.W. 3779 (June 18, 2001) (No. 00-1543).

214. See *Adelman*, *supra* note 185, at 1023.

arising technology through literal infringement.<sup>215</sup> The patent holder of an unpredictable art will have to rely on the doctrine of equivalents for protection from an equivalent based on after-arising technology. If a claim of an unpredictable art has been amended during prosecution for reasons related to patentability, *Festo* would completely bar the application of the doctrine of equivalents. If the invention was in a predictable art, inventors may still be able to protect their rights through literal infringement of a broad claim, but the inventor in an unpredictable art would have no such recourse.

Inventions in the predictable arts, such as mechanical or electrical inventions, can enable broad claims that capture after-arising technology under literal infringement. Because predictable arts can enable broad literal claims, they may be able to cover the after-arising technology through literal infringement.<sup>216</sup> For example, in *Hughes*, the after-arising technology could have been covered literally by a broad claim.<sup>217</sup> The accused device performed the same function, using the same operation as the patented invention.<sup>218</sup> The only difference was the physical location where the function was being performed.<sup>219</sup> The patent drafter could have drafted broad claims that included computing the positioning figures by a ground station or a microprocessor on board the satellite.<sup>220</sup> Because electronics is a predictable art, the claims likely would have been enabling.<sup>221</sup> Had the patent in *Hughes* contained broad literal claims, the patentee may not have needed the doctrine of equivalents to achieve a finding of infringement against the after-arising technology.

A lack of protection against after-arising technology in the unpredictable arts would decrease the value of these patents and discourage innovation. Research into unpredictable arts, such as biotechnology and pharmaceuticals, is expensive and time consuming and there is no guarantee of success.<sup>222</sup> Companies will be less willing to spend money on projects involving the unpredictable arts due to an

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215. ADELMAN, *supra* note 3, § 3.4, at 3-40.18.

216. ADELMAN, *supra* note 3, § 3.4, at 3-40.18.

217. Adelman & Francione, *supra* note 55, at 712-14.

218. *Hughes Aircraft Co. v. United States*, 140 F.3d 1470, 1475 (Fed. Cir. 1998).

219. *Id.*

220. Adelman & Francione, *supra* note 55, at 713-14.

221. Adelman & Francione, *supra* note 55, at 713-14.

222. See Luke Timmerman, *Flush Biotechs Not Worried About Slowdown*, SEATTLE TIMES, June 23, 2001, at E1.

inability to protect their investments against after-arising technology. The *Festo* “complete bar” rule permits competitors in the unpredictable arts to make an insubstantial substitution to a claim element using after-arising technology without fear of infringement litigation.

*D. The Festo Decision Conflicts with the Policy of Rewarding Pioneer Inventions*

*Festo* frustrates the patent law policy of rewarding inventors for pioneering inventions. Pioneer inventions gain the benefit of broader claims because the claims can be drafted without being limited by prior art.<sup>223</sup> Also, during the litigation of pioneer inventions, the doctrine of equivalents will be limited neither by prior art nor by prosecution history estoppel based on prior art rejections.<sup>224</sup> The Federal Circuit recognizes that pioneer inventions are justly rewarded for their contribution to science by broad claim coverage and no limits to the doctrine of equivalents.<sup>225</sup>

*Festo* may deny an inventor the reward of broad claim interpretation for a pioneering invention. Under *Festo*, narrowing claim amendments made in response to prior art rejections and Section 112 rejections will preclude the doctrine of equivalents in future litigation. By definition, pioneer inventions do not encounter PTO rejections based on prior art, but may make amendments to overcome patentability rejections under Section 112 because of the difficulty in adequately describing a new area of science.<sup>226</sup> Thus, under *Festo*, an inventor who needs to make a narrowing amendment due to the inherent difficulty of drafting claims for pioneering inventions may not be able to use the doctrine of equivalents in future litigation. *Festo*’s bright-line rule unfairly restricts the rights of pioneer inventors to literal infringement only. However, because nearly all infringement of pioneering inventions will be from after-arising technology,<sup>227</sup> pioneer inventors will rely on the doctrine of equivalents during infringement litigation. Thus, under *Festo*, an inventor of a pioneering invention may have less protection than

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223. *Augustine Med., Inc. v. Gaymar Indus., Inc.*, 181 F.3d 1291, 1301 (Fed. Cir. 1999).

224. *Id.* at 1301–02.

225. *Id.*

226. Brief for Amicus Curiae Chiron Corporation in Support of Respondent, *Warner-Jenkinson Co. v. Hilton Davis Chem. Co.*, 520 U.S. 17 (1997), available at 1996 WL 254689, \*17.

227. ADELMAN, *supra* note 3, § 3.4[1], at 3-42.30(22).

someone who makes only an incremental improvement in a well-developed field of science.<sup>228</sup> Such an outcome contradicts the Federal Circuit's policy that pioneering patent claims deserve a broader scope as a reward for venturing into new areas of science.

*E. Festo Should Have Permitted the Flexible Approach to Prosecution History Estoppel in Cases of Infringement by After-Arising Technology*

The Supreme Court should overrule *Festo* and apply the flexible approach to prosecution history estoppel when faced with accused infringement by after-arising technology.<sup>229</sup> The purpose of the patent system is to encourage technological innovation by protecting patentees' inventions. In cases of after-arising technology, patentees cannot rely on literal infringement for protection; the claims may not literally cover the after-arising technology at the time the claims were drafted. Therefore, patentees need the doctrine of equivalents if they are to protect themselves against after-arising technology. The flexible approach gives a court the opportunity to determine if the patent still covers the after-arising technology even after the patentee has made a narrowing amendment for reasons related to patentability. The fact that a claim was amended during the application process should not mindlessly prohibit the doctrine of equivalents against infringing equivalents that gain the benefit of new technology.

The *Festo* majority's decision to limit infringement protection against after-arising technology provided by the doctrine of equivalents is troublesome. While promoting certainty in the patent system and emphasizing the notice function of claims is important, these goals should not be accomplished by completely sacrificing patentees' protection against after-arising technology. Also, the majority completely failed to consider the effect its decision would have in the context of after-arising technology. A flexible approach would maintain the proper balance between the notice function of claims and the fair protection of patentees. Instead, the majority precluded application of the doctrine of

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228. Brief for Amicus Curiae Chiron Corporation in Support of Respondent, Warner-Jenkinson Co. v. Hilton Davis Chem. Co., 520 U.S. 17 (1997), available at 1996 WL 254689, \*19-20.

229. See ADELMAN, *supra* note 3, § 3.5, at 3-42.56(14)-(16) (advocating scope of equivalents in cases of after-arising technology); see also PHILLIPS, *supra* note 111, at 180-81 (arguing that doctrine of equivalents should be reserved only for equivalents that arise after filing of the patent application).

equivalents in many cases and, consequently, left patentees exposed to copyists clever enough to use after-arising technology to avoid infringement.

## VI. CONCLUSION

The *Festo* decision runs contrary to the major function of the doctrine of equivalents—protecting patent holders from after-arising technology. Supreme Court and Federal Circuit precedent expressly advocate maintaining the doctrine of equivalents so that patentees can take action against accused infringers using new technologies. The *Festo* majority created a “complete bar” rule to promote certainty in the patent system and to emphasize the notice function of patent claims. The court failed to consider important language in *Warner-Jenkinson*—as well as Federal Circuit precedent interpreting *Warner-Jenkinson*—that permits a scope of equivalents after a narrowing claim amendment for reasons related to patentability.

The *Festo* court failed to consider the impact of its decision in patent suits against accused devices using after-arising equivalents. The *Festo* decision prejudices patents in the unpredictable arts, which cannot enable broad claims as easily as those in the predictable arts. The application of the complete bar rule also runs contrary to the policy that pioneer inventions should be rewarded with broad claim coverage.

The Supreme Court should overrule *Festo*’s complete bar rule and allow the flexible approach to prosecution history estoppel in all cases of infringement by after-arising technology. The Court needs to correct the imbalance that *Festo* created between the notice function of claims and the fair protection of patented inventions.



